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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,393	09/06/2000	Kenneth M. Levine	24379	9357

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EXAMINER

BOYCE, ANDRE D

ART UNIT	PAPER NUMBER
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3623

DATE MAILED: 06/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/656,393

Applicant(s)

LEVINE ET AL.

Examiner

Andre Boyce

Art Unit

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Non-final office action is in response to Applicant's amendment filed February 24, 2006. Claims 1-49 are pending.

Declaration Under 37 CFR § 1.131

2. The declaration filed on February 24, 2006 under 37 CFR 1.131 has been considered and is effective to overcome the Sisley et al (USPN 6,571,215) and Pareschi et al (USPN 6,725,428) references.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-10, 12-27, 29-35 and 37-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Sisley et al (USPN 5,943,652).

As per claim 1, Sisley et al disclose a computer implemented method for managing mobile workers (i.e., assignment and scheduling (A/S) system 12, column

5, lines 27-29) in an object oriented programming environment (i.e., common lisp object system, column 5, lines 31-35) comprising the steps of: classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker (i.e., environment characterized by three representational sets, including a call set defined by a plurality of customer service calls, column 5, lines 49-56); defining the attributes of each target object, including the tasks to be performed on each target object (i.e., assignment set defined by a plurality of assignments of calls to the technicians, column 5, lines 56-57); scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine the algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed (i.e., A/S system 12 generates assignment and scheduling recommendations, representing modifications of the assignment set, column 5, lines 59-63); and outputting a schedule of jobs to the mobile workers (i.e., output to interactive user interface 18, figure 1).

As per claims 2 (and 27), Sisley et al disclose classifying the plurality of target objects within a server computer and outputting the schedule to a client computer operated by a mobile worker (i.e., interactive user interface 18, column 5, lines 39-41).

As per claims 4 (and 29), Sisley et al disclose the step of building a plurality of user configured system agents for one of at least automating work planning, scheduling tasks to workers (i.e., A/S system 12 generates assignment and scheduling recommendations, representing modifications of the assignment set,

column 5, lines 59-63), dispatching workers, stores management, job state management or end-of-shift management.

As per claims 5 (and 30), Sisley et al does not explicitly disclose the rule engine comprises a forward chaining rule engine with different rule sets for each system agent (i.e., constraint processing technique, column 7, lines 60-67).

As per claims 6 (and 31), Sisley et al disclose the rule engine determines a primary scheduling algorithm and parameters to be used for scheduling jobs to workers (i.e., A/S system 12 uses a modified best first search that combines optimization, AI, and constraint-processing techniques, column 7, lines 60-63).

As per claims 7 (and 32), Sisley et al disclose the primary scheduling algorithm comprises a brute force-scheduling algorithm (i.e., modified best-first search, including optimization, column 7, lines 58-63)

As per claims 8 (and 33), Sisley et al disclose a round robin scheduling algorithm (i.e., pruning heuristics, including caching, column 22, lines 23-27).

As per claims 9 (and 34), Sisley et al disclose the primary scheduling algorithm comprises a scheduling algorithm that assigns jobs to workers that maximize the job's utility (i.e., A/S system generates assignment and scheduling recommendations for all new calls as they are received and immediately readjusts the assignment resulting in global optimization, column 8, lines 2-5).

As per claims 10 (and 35), Sisley et al discloses the unassigned job queue is ordered from the highest utility to the lowest utility (i.e., a new call is received in

queue 20 and the assigner module 22 to determine and order the existing set, column 8, lines 45-51).

As per claims 12 (and 37), Sisley et al disclose the algorithm comprises a rescheduling algorithm that is operable by determining the utility of unassigned jobs and rescheduling the assigned jobs, replacing some assigned jobs with unassigned jobs on workers' schedules, based on an added utility (i.e., generation of complete solution by the assigner module 22, by expansion of root node 72, wherein assignment of pending calls may be changed, column 8, lines 55-67).

As per claims 13 (and 38), Sisley et al disclose the step of maintaining a historical database that reflects all changes in system configuration, including targets and tasks, based on running system agents and on user interactions (i.e., data structures 26, 28 and 30, column 7, lines 22-24).

As per claims 14 (and 39), Sisley et al disclose the step of viewing status and changes of task, system agents and schedules of jobs within a business viewer (i.e., user interface 18, column 6, lines 28-32).

As per claims 15 (and 40), Sisley et al disclose the step of maintaining a system log of all activities (i.e., data structures 26, 28 and 30, column 7, lines 22-24).

As per claims 16 (and 41), Sisley et al disclose the step of maintaining a policy database that allows users to configure system agents and a plurality of use cases corresponding to human and system interaction and definitions (i.e., system users may assign relative weights to stress values to reflect management policies of the organization column 18, lines 1-2).

As per claims 17 (and 42), Sisley et al disclose the step of building definitions of targets and their tasks, according to the classification of the targets as templates, and using the templates to create each individual target of the classification (i.e., three main data structures including assignment set data structure 26, technician set data structure 28 and call set data structure 30, column 7, lines 22-35).

As per claim 18, Sisley et al disclose a computer implemented method for managing mobile workers (i.e., assignment and scheduling (A/S) system 12, column 5, lines 27-29) in an object oriented programming environment (i.e., common lisp object system, column 5, lines 31-35) comprising the steps of: classifying the attributes of each target object, including the tasks to be performed on each target object (i.e., environment characterized by three representational sets, including a call set defined by a plurality of customer service calls, column 5, lines 49-56); building user configured system agents and software components that automate the system environment for managing mobile workers (i.e., assignment set defined by a plurality of assignments of calls to the technicians, column 5, lines 56-57); scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine the algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed (i.e., A/S system 12 generates assignment and scheduling recommendations, representing modifications of the assignment set, column 5, lines 59-63); configuring system agents and software components with user configured settings of a policy database that are reflective of a particular business (i.e., system users may assign relative weights to stress values

to reflect management policies of the organization column 18, lines 1-2); and outputting a schedule of jobs to the mobile workers (i.e., output to interactive user interface 18, figure 1).

As per claim 19, Sisley et al disclose the step of updating the policy database interactively wherein the system agents and other software components update their actions based on the present contents of the policy database (i.e., system users may assign relative weight to the component stress values, wherein the scheduler module 24 estimates the schedule stress value of the potential schedule by an objective function, column 18, lines 1-2 and column).

As per claim 20, Sisley et al disclose said step of simulating the workings of the system environment (i.e., system users may assign relative weight to the component stress values, wherein the scheduler module 24 estimates the schedule stress value of the potential schedule by an objective function, column 18, lines 1-2 and column).

As per claim 21, Sisley et al does not explicitly disclose a) setting policy database values; b) simulating resultant operations of system agents and software components and viewing the results; c) iterating between steps a and b to view the impact of setting policy database variables to various values; and d) using the results of a through c to determine the optimum values to use for the policy values in a live operational system (i.e., system users may assign relative weight to the component stress values, wherein the scheduler module 24 estimates the schedule stress value of the potential schedule by an objective function, column 18, lines 1-2 and column).

As per claim 22, Sisley et al disclose a method of managing mobile workers (i.e., assignment and scheduling (A/S) system 12, column 5, lines 27-29) comprising the steps of: creating a job classification within a planning agent module of a computer corresponding to a collection of tasks to schedule (i.e., environment characterized by three representational sets, including a call set defined by a plurality of customer service calls, column 5, lines 49-56), and the worker skills and material required to complete the tasks (i.e., attributes for each technician, including a set of skills, column 5, lines 64-67); based on a plurality of rules contained within a rule engine, matching the worker skills with the tasks to be scheduled (i.e., A/S system 12 generates assignment and scheduling recommendations, representing modifications of the assignment set, column 5, lines 59-63); and outputting a schedule for mobile worker management (i.e., output to interactive user interface 18, figure 1).

As per claim 23, Sisley et al disclose the step of matching worker skill resources with the demands of a job within a scheduler agent of the computer (column 5, lines 59-63).

As per claim 24, Sisley et al disclose the step of tracking the location and status of a workforce via a dispatcher agent of the computer (i.e., user interface 18 receives field event data from the technicians, column 6, lines 35-41).

As per claim 25, Sisley et al disclose the step of issuing system events within the computer (i.e., A/S system triggered by SMS event data from the SMS database, column 6, lines 26-30) and determining how any status of active job agents within the computer respond via a job state manager agent contained within the computer

(i.e., SMS event data representing incremental changes to a call set, column 6, lines 30-33).

As per claim 26, Sisley et al disclose a computer implemented method for managing mobile workers (i.e., assignment and scheduling (A/S) system 12, column 5, lines 27-29) in an object oriented programming environment (i.e., common lisp object system, column 5, lines 31-35) comprising the steps of: classifying within a database of a computer a plurality of target objects corresponding to facilities assets to be worked on by a mobile worker (i.e., environment characterized by three representational sets, including a call set defined by a plurality of customer service calls, column 5, lines 49-56); defining the attributes of each target object, including the tasks to be performed on each target object (i.e., assignment set defined by a plurality of assignments of calls to the technicians, column 5, lines 56-57); scheduling mobile workers for the tasks to be performed on target objects by running a rule engine to determine the algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed (i.e., A/S system 12 generates assignment and scheduling recommendations, representing modifications of the assignment set, column 5, lines 59-63), and establishing a simulator database and running a simulator program to establish policy values in a simulation of the working of a system environment to determine optimum policy values for a given business (i.e., system users may assign relative weight to the component stress values, wherein the scheduler module 24 estimates the schedule stress value of the potential schedule by an objective function, column 18, lines 1-2 and column).

Claims 43-49 are rejected based upon the rejection of claims 1, 2, 4, 7, 8, 16 and 26, respectively, since they are the system claims corresponding to the method claims.

Claim Rejections - 35 USC § 103

6. Claims 3 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sisley et al (USPN 5,943,652), in view of Draves (USPN 5,873,124).

As per claims 3 (and 28), Sisley et al does not explicitly disclose communicating with a mobile worker via a telecommunications link and a hand-held, web based device. Draves discloses a computer system 40 including hand-held computers and internet terminals (column 4, lines 9-13) able to perform system-related tasks such as task scheduling (column 4, lines 62-64). Both Sisley et al and Draves are concerned with efficient task scheduling, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include communicating via a telecommunications link and a hand-held, web based device (i.e., hand-held computer) in Sisley et al, as seen in Draves, as an efficient means of communicating with the field technician in Sisley et al, making the system more robust.

7. Claims 11 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sisley et al.

As per claims 11 (and 36), Sisley et al does not explicitly disclose the unassigned job queue is ordered the lowest utility to the highest utility. However, Sisley et al disclose a new call is received in queue 20 and the assigner module 22 to determine and order the existing set (column 8, lines 45-51), thus disclosing assignment ordering in a queue. Therefore it would have been obvious to one having ordinary skill in the art, at the time the invention was made to include a job queue is ordered the lowest utility to the highest utility in Sisley et al, thus providing an efficient means of ordering queued assignments, thus making Sisley et al more robust.

Conclusion

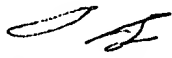
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre Boyce whose telephone number is (571) 272-6726. The examiner can normally be reached on 9:30-6pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

adb
May 11, 2006


ANDRE BOYCE
PATENT EXAMINER
A. U. 3623